THE RECENT DISTRIBUTION OF ENDEMIC AND DISJUNCT BIRDS IN KERALA STATE: PRELIMINARY RESULTS OF AN ONGOING SURVEY

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(*With fifteen maps*)

INTRODUCTION

The Western Ghats of South India support many species of endemic birds. In addition, the avifauna includes many species of "disjuncts", populations that are isolated from other conspecifics elsewhere in India; usually in the Eastern Ghats or in the Himalayas. Disjunct species are of special interest because they may represent relict outliers of formerly continuous populations interconnected during the Pleistocene (Ali 1949, 1969). All of the species involved are resident. The Western Ghats are considered an internationally important area for avian species diversity and support 14 species of birds considered to be "near-threatened" globally (Collar *et al.* 1994).

Much of the natural forest remaining in the southern Western Ghats is located in the State of Kerala, where surveys were carried out in 1933-35 by Dr. Sálim Ali (1969). Since 1973, we have been carrying out surveys of birds in the state to assess their recent status and the effects of changes in land-use. Our primary goal has been to assess the current distribution of rare, endemic and disjunct species to provide a background for prioritizing conservation action. Although our surveys are not yet complete, we present some preliminary results, concentrating on trends and distribution patterns that can be unambiguously determined on the basis of results to date.

Natural forests of the Western Ghats in Kerala range from dry deciduous to moist evergreen (Champion and Seth 1968). The highest forests consist of characteristic evergreen associations known as "*sholas*", often bordered by dense thickets of *Strobilanthes* shrubs. The summits of the ranges are mainly grassland maintained by periodic burning, probably an ancient landscape feature.

All of the forests of Kerala have been much degraded by human activities in recent decades, with forests changing from moist evergreen towards deciduous as they are opened up. As a result of recent encroachments by agriculturists and the opening up of forests through widespread timber felling, few forest blocks are now unmixed. Probably all areas include patches of both evergreen and moist deciduous forest. In addition, large areas of high altitude grasslands have been taken over for eucalyptus plantations. Some of these plantations coexist with natural grasses, creating semi-wooded grasslands. Pure natural ecosystems, untouched by felling, grazing or planting, are relatively rare, even within protected areas.

METHODS

Surveys were carried out by either or both the authors, sometimes in company with others, in 20 forest areas of Kerala. All species seen or heard were recorded and numbers of less common species were noted. Each survey consisted of a visit of minimum three days duration, covering as large a range of forest types as we could find in the area. We also visited plantations and areas of reafforestation, where these were adjacent to natural forests. However, we did not visit large blocks of plantations. Some areas have been surveyed repeatedly over several years, especially the Thekkady area. Results from Wynaad have already been published (Zacharias and Gaston 1993).

Our plan calls for surveys in all seasons (winter, December-January; hot season, February-May; monsoon, June-September; and post-monsoon, October-November), but this has not been achieved

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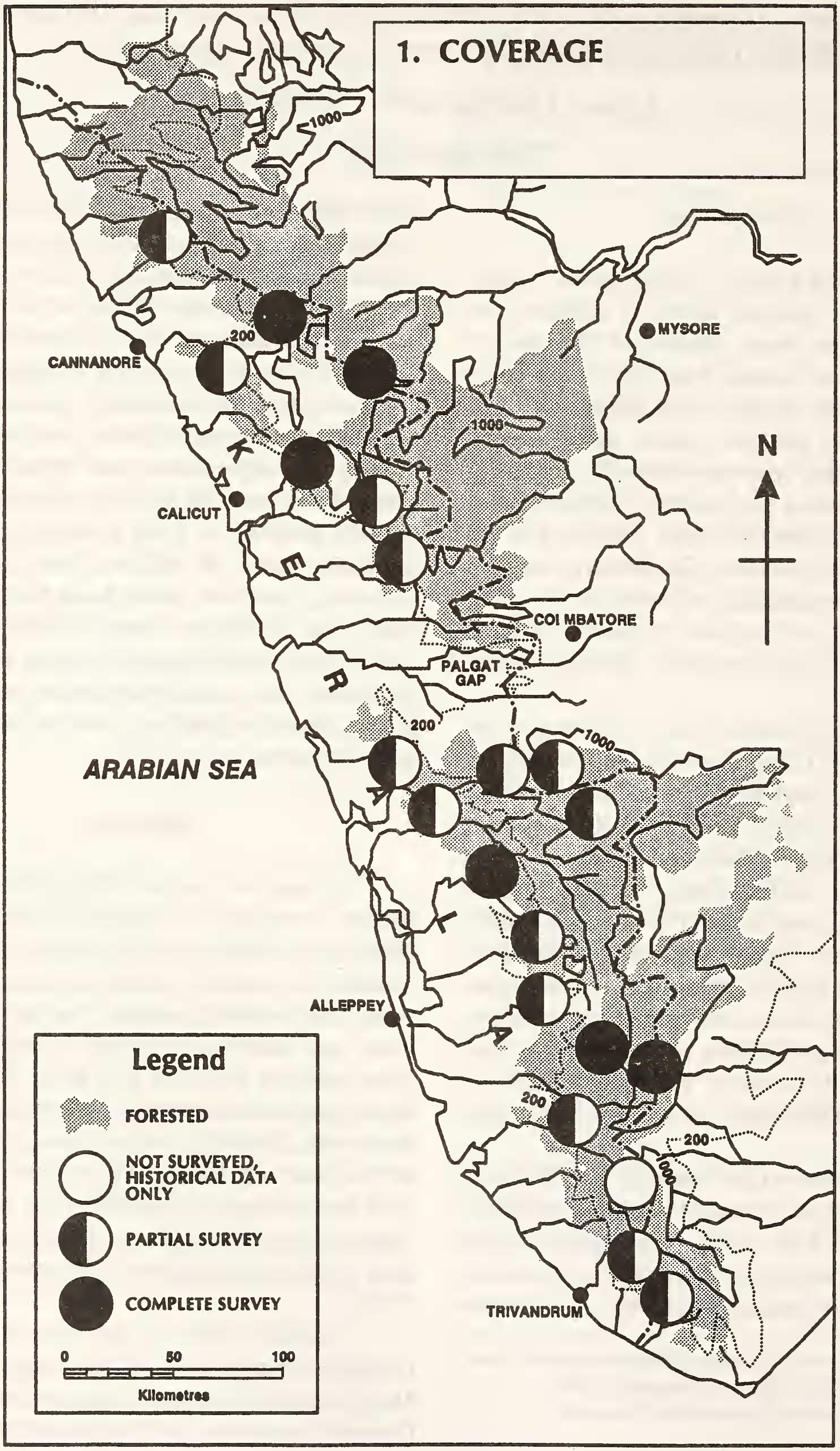
1. COVERAGE
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FORESTED
NOT SURVEYED, HISTORICAL DATA ONLY
PARTIAL SURVEY
COMPLETE SURVEY
0
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Kilometres

for all areas. Map 1 shows the amount of cover achieved by our surveys to date. Complete cover means that visits have been carried out in all seasons. Numerical abundance is estimated on the following scale: abundant, seen in double figures daily; common, seen daily; uncommon, seen on more than 30% of days, but not daily; rare, seen on less than 30% of days. Altitudes are classified as low (<500 m), middle (500-1000 m) or high (>1000 m). Historical data is taken from the literature. Additional forest areas will be surveyed over the next two years, to give more complete coverage.

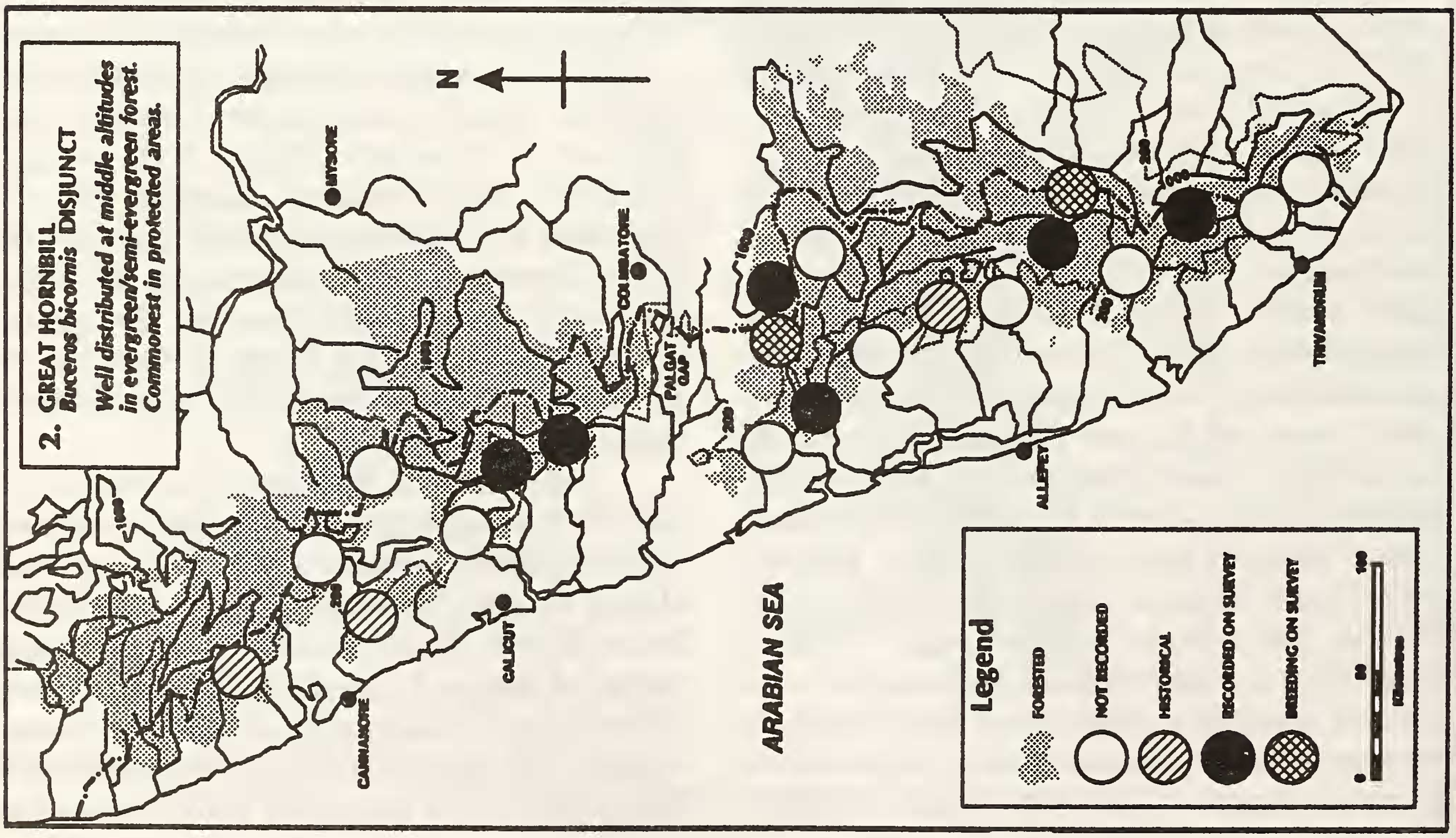
Distributions

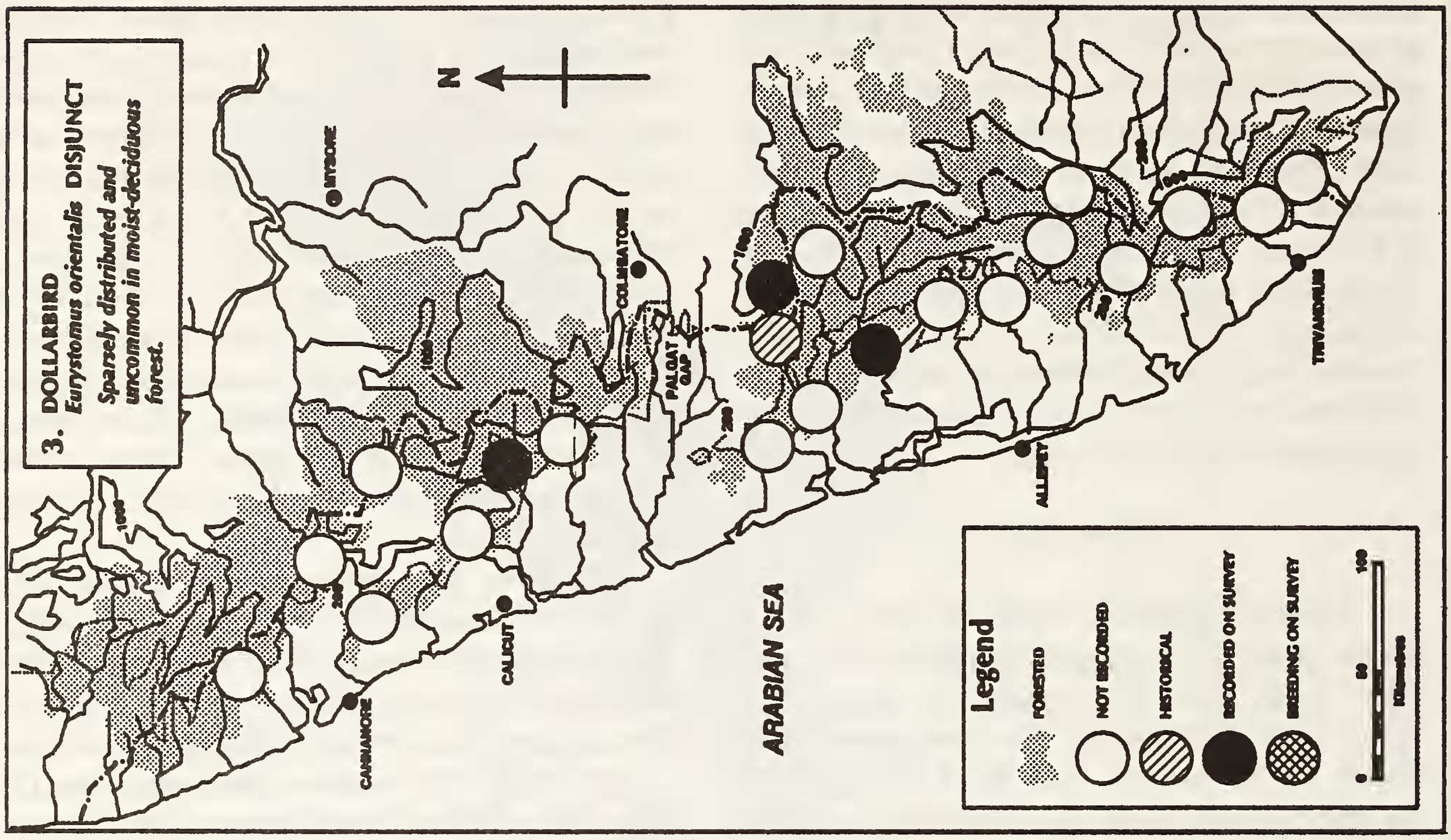
Sample distribution maps are given for 14 species (maps 2-15), comprising one hornbill, one roller, one parakeet, one nightjar, one pigeon, two raptors, and 7 passerines. The most widespread species on our surveys was the Bluewinged or Malabar Parakeet *Psittacula columboides*, recorded at every locality visited. The least was the Ceylon Frogmouth *Batrachostomus moniliger*, recorded in only three areas.

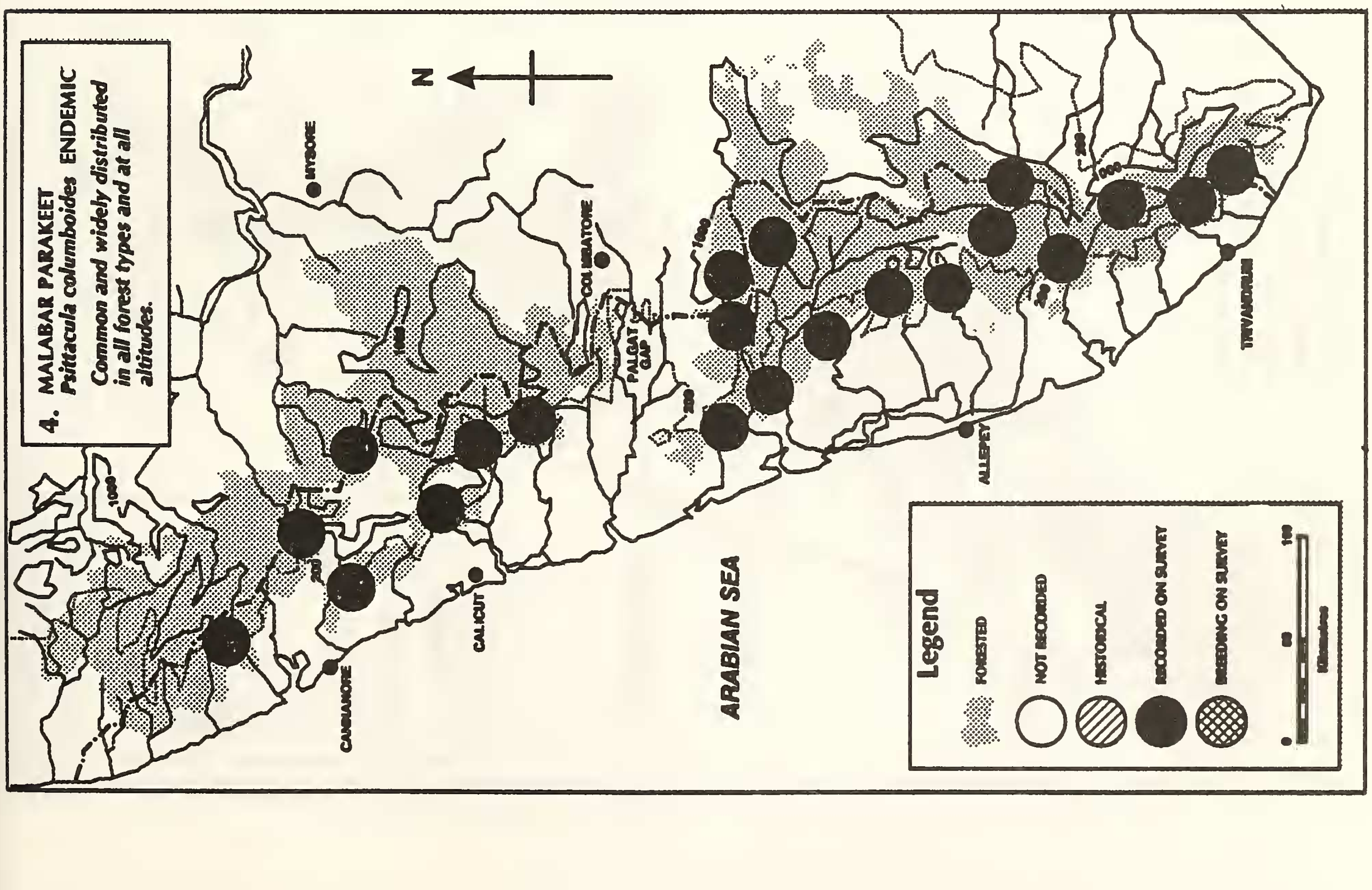
Disjunct species: The species considered disjunct, based on the ranges given by Ali and Ripley (1987) are listed in Appendix 1. We found many to be widespread (seen at more than 50% of localities) and common, especially at low altitudes (Large Brownthroated Spinetail Swift *Chaetura gigantea*, Indian Goldenbacked Threetoed Woodpecker *Dinopium javanense*, Pigmy Woodpecker *Picoides nanus*, Malabar Trogon *Harpactes fasciatus*, Fairy Bluebird *Irena puella*). Some of these species have accommodated to forest fragmentation by occupying small forest patches and plantations. However, disjunct raptors and nightjars were generally patchily distributed (Black-crested Baza *Aviceda leuphotes*, map 7; Jerdon's Baza *Aviceda jerdoni*, Rufous-bellied Eagle *Hieraeetus kienerii*, map 8; Great Eared Nightjar *Eurostopodus macrotis*, map 5; Ceylon Frogmouth) and may be more dependent on large areas of continuous forest. Great Eared Nightjars were not recorded in two areas where they had been previously reported. The Lesser Coucal *Centropus toulou*, reported by Ali as "not uncommon", is now uncommon, with a patchy distribution. The Broadbilled Roller *Eurystomus orientalis* was found only in moist deciduous forest and in only three areas on our surveys. Numbers seen in all areas were small (single figures). As a hole-nester, it may be affected by the removal of old trees. The disjunct species occurring exclusively at high altitudes, Smallbilled Mountain Thrush *Zoothera dauma* and Eurasian Blackbird *Turdus merula*, were uncommon and both were found in only a few localities. These species may have originated from migrant visitors, rather than dispersing from the Himalayas through continuous habitat.

Endemics: A high proportion of these (8/19 spp.) were found only or predominantly at middle and high altitudes (compared to 3/21 disjuncts). High altitude species include those confined to grasslands (Broad-tailed Grass Warbler *Schoenicola platyura*, map 12; Nilgiri Pipit *Anthus nilghiriensis*, map 15), and to sholas (Whitebellied Shortwing *Brachypteryx major albiventris*, map 10; Black-and-orange Flycatcher *Muscicapa nigrorufa*, map 11; Nilgiri Flycatcher *Eumyias albicaudata*; White-breasted Laughing Thrush *Garrulax jerdoni*, map 14). Although found at only a few localities (all recorded at <50% of localities), probably because of their restricted altitude range, several species were common or abundant (Nilgiri Pipit, Nilgiri Flycatcher, White-breasted Laughing Thrush). Grasslands and sholas have probably been affected less by disturbance and degradation than the forests found at lower altitudes. However, the species involved are all confined to the southern part of the Western Ghats and hence have very restricted ranges.

Some endemic species have adapted to plantations and agricultural landscapes (Crimson-fronted Barbet *Megalaima rubricapilla*, Bluewinged Malabar Parakeet, Yellowbrowed Bulbul *Iole indica*, Rufous Babbler *Turdoides subrufus*, Small Sunbird *Nectarinia minima*, Rufous-bellied Munia *Lonchura kelaarti*) and consequently all are common or abundant. Species most affected by habitat alteration are probably the low and middle altitude forest birds

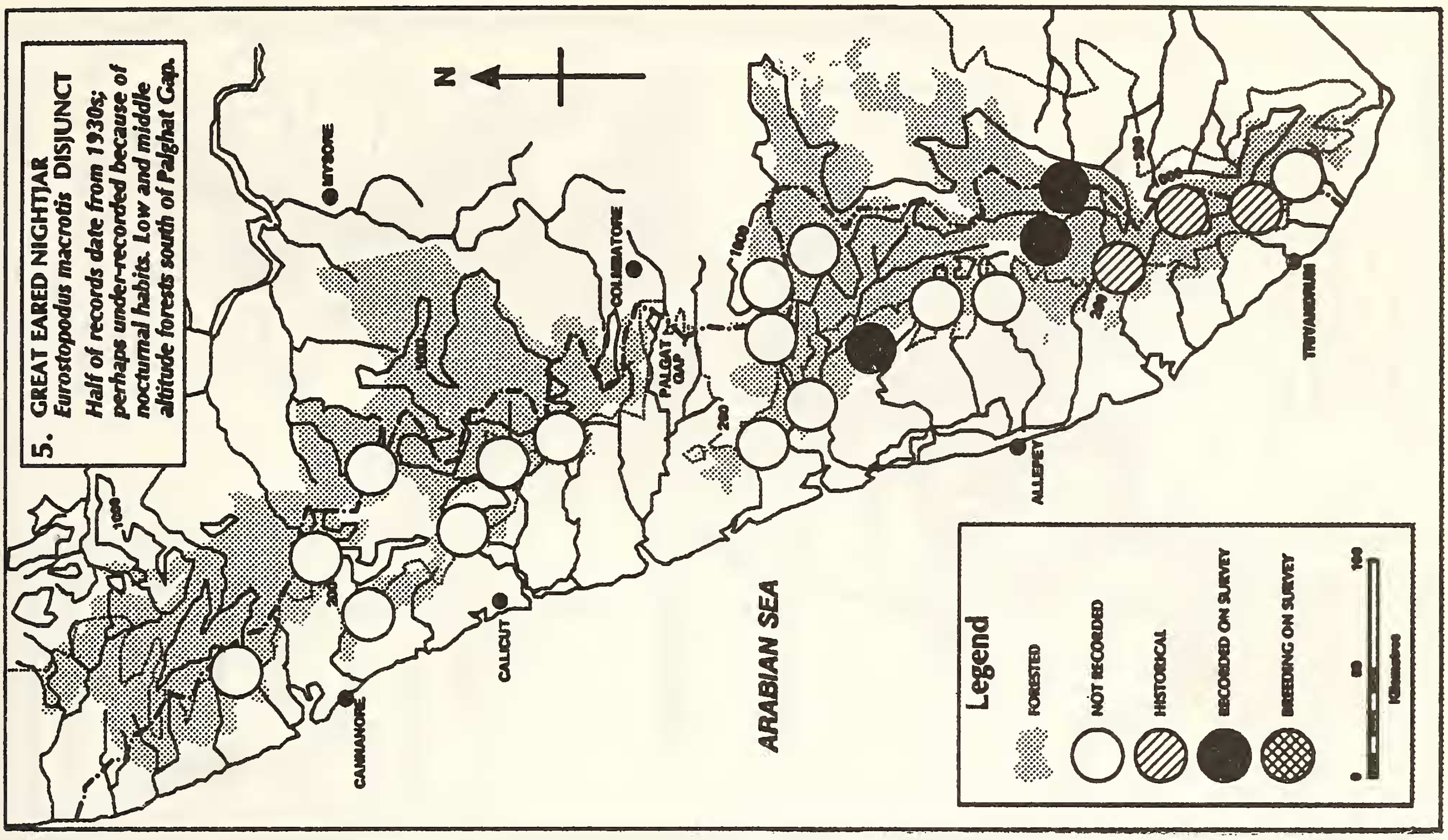

2. GREAT HORNBILL
Buceros bicornis DISJUNCT
Well distributed at middle altitudes in evergreen/semi-evergreen forest. Commonest in protected areas.


3. DOLLARBIRD
Eurystomus orientalis DISJUNCT
Sparsely distributed and uncommon in moist-deciduous forest.



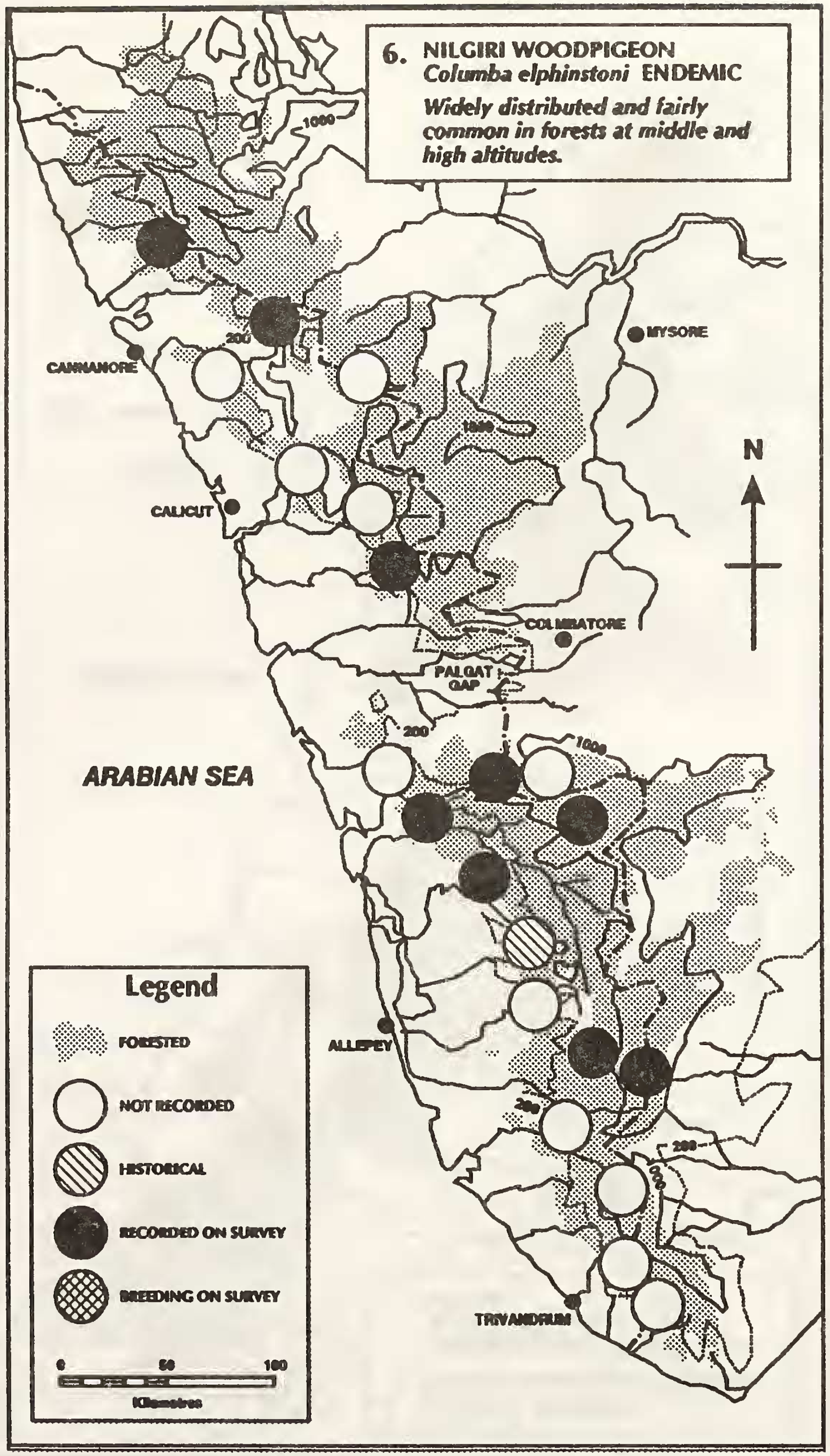
4. MALABAR PARAKEET
Psittacula columboides ENDEMIC

Common and widely distributed in all forest types and at all altitudes.



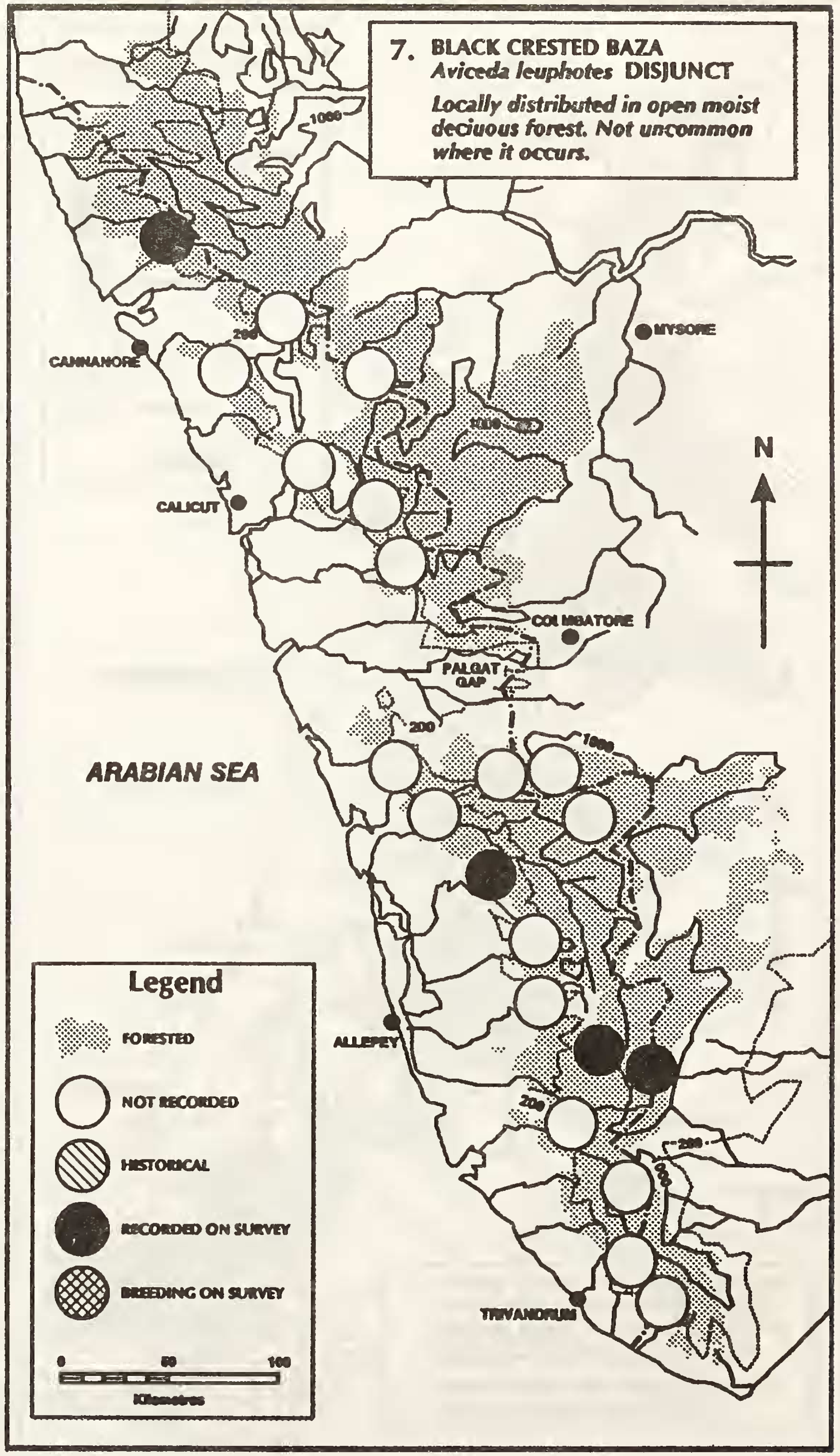
5. GREAT EARED NIGHTJAR
Eurostopodus macrotis DISJUNCT

Half of records date from 1930s; perhaps under-recorded because of nocturnal habits. Low and middle altitude forests south of Palghat Gap.



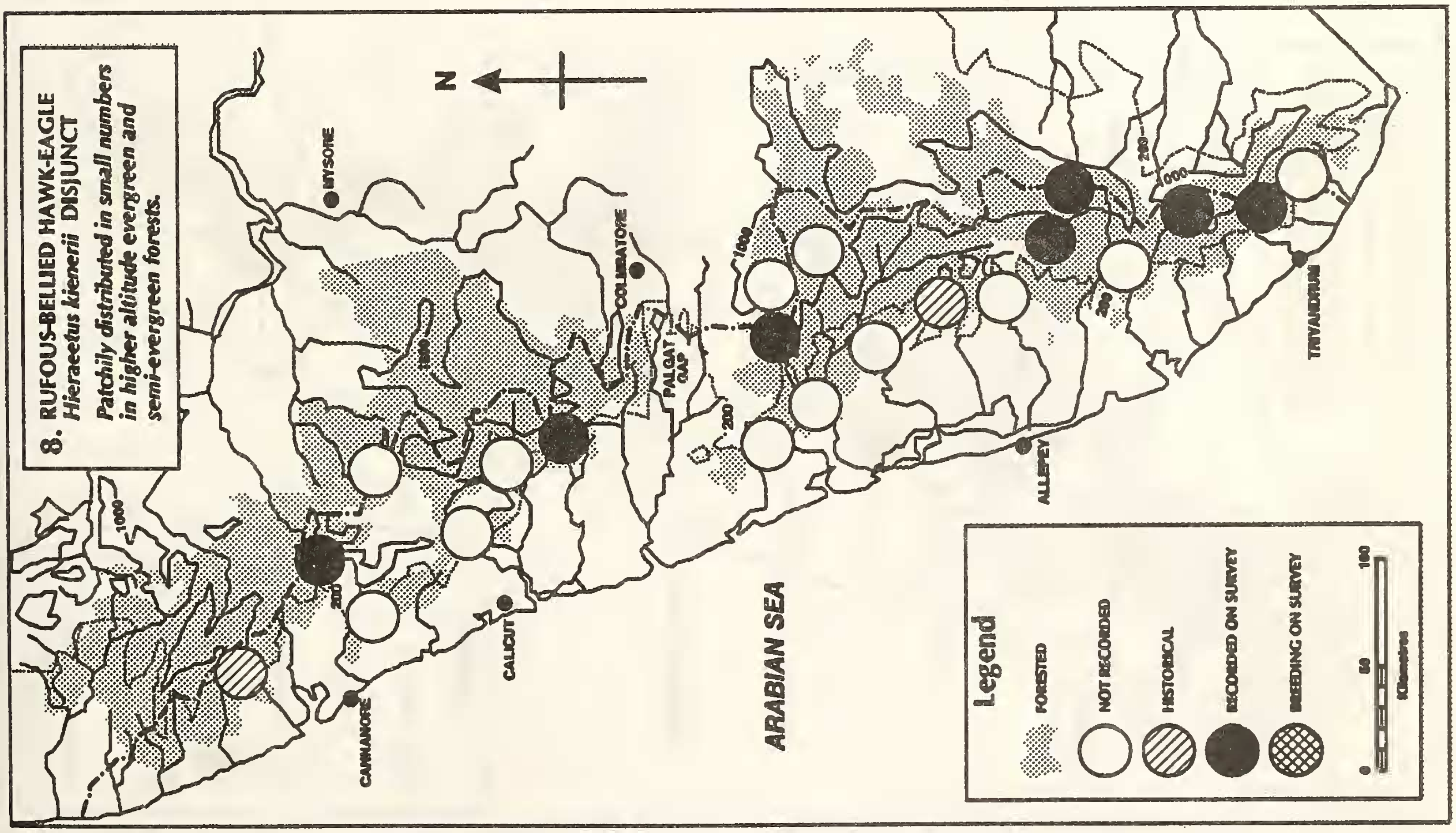
6. NILGIRI WOODPIGEON
Columba elphinstoni ENDEMIC

Widely distributed and fairly common in forests at middle and high altitudes.

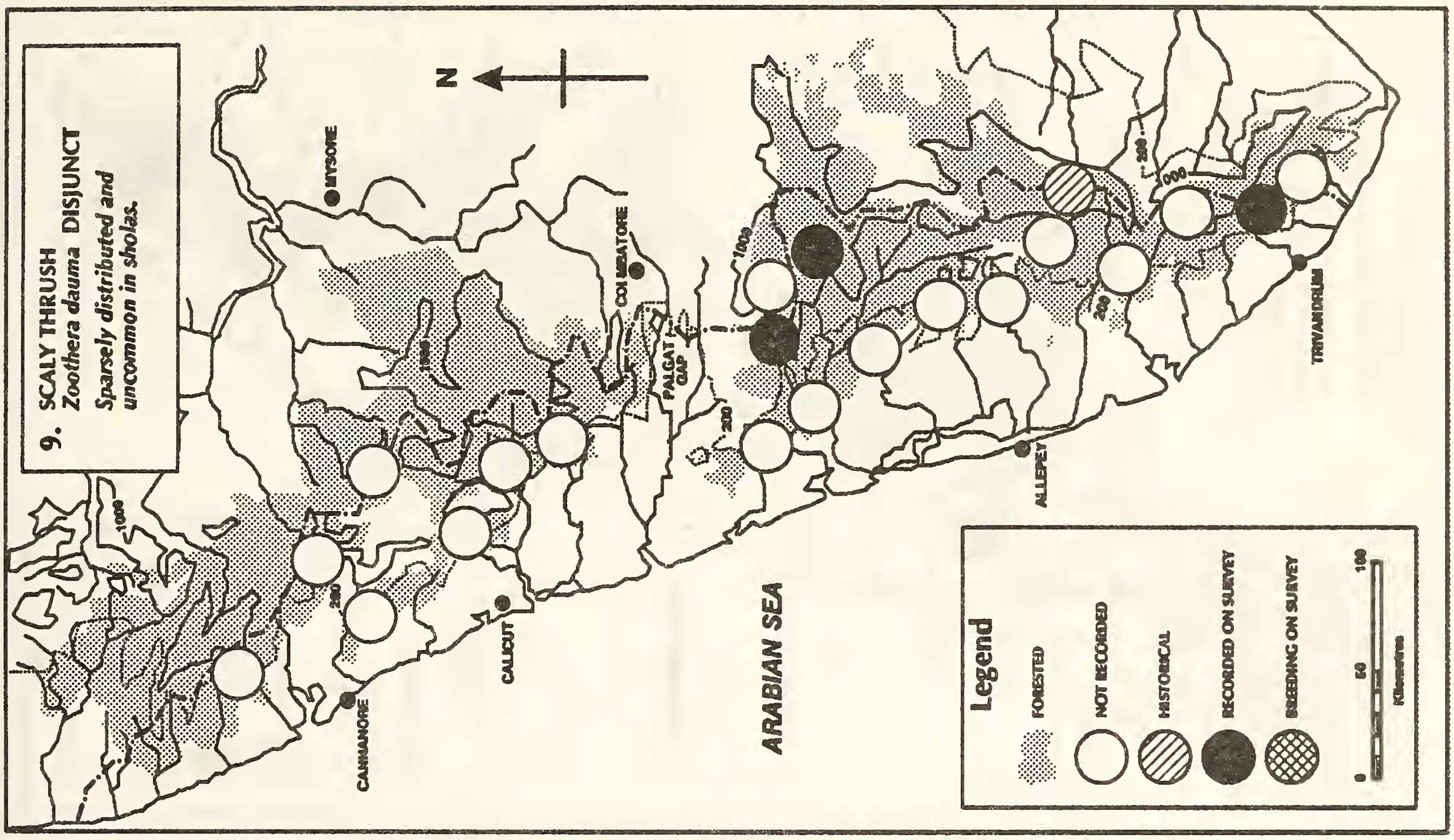


7. BLACK CRESTED BAZA
Aviceda leuphotes DISJUNCT

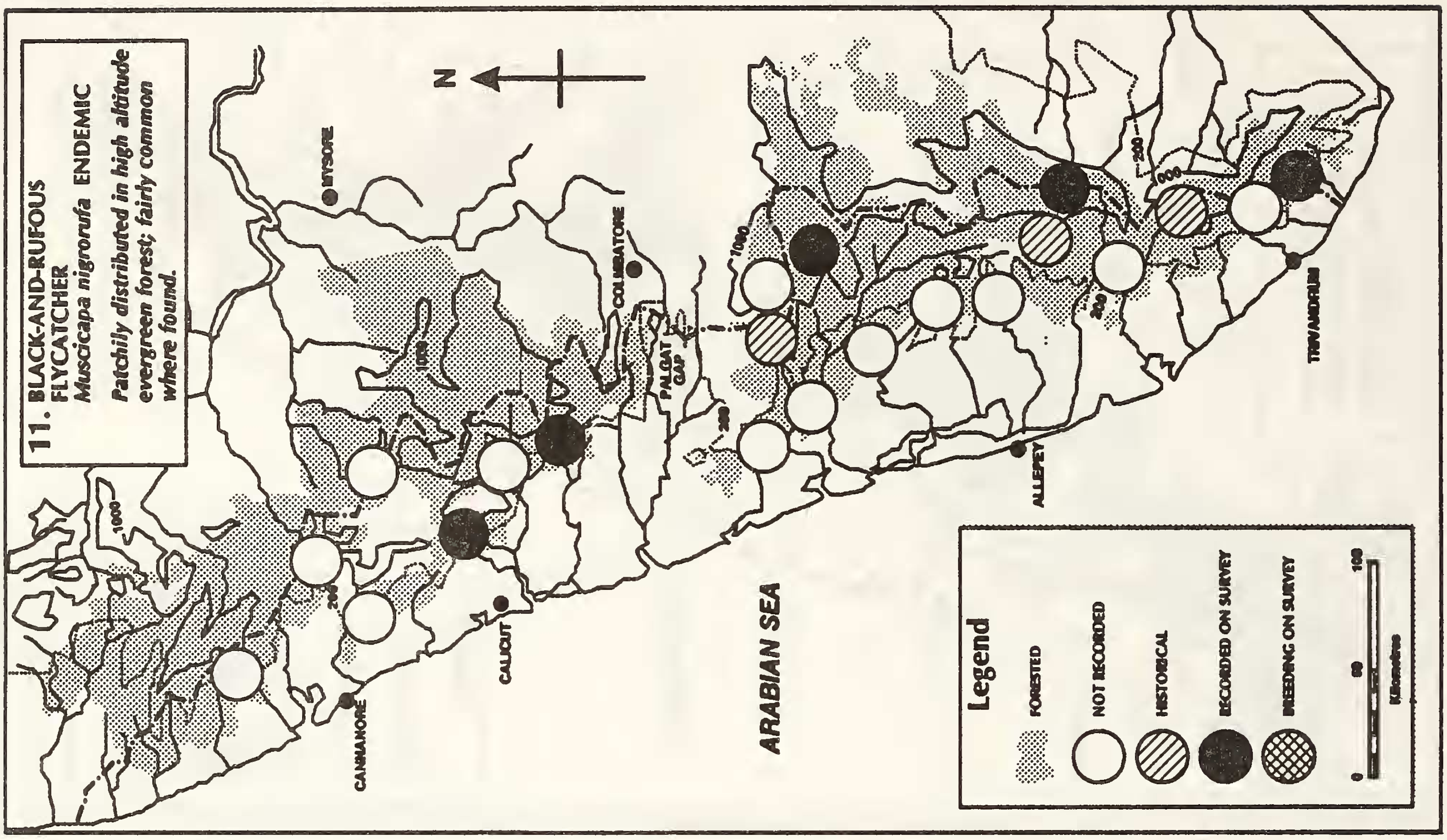
Locally distributed in open moist deciuous forest. Not uncommon where it occurs.



8. RUFOUS-BELLIED HAWK-EAGLE
Hieraeetus kienerii DISJUNCT
Patchily distributed in small numbers in higher altitude evergreen and semi-evergreen forests.



9. SCALY THRUSH
Zoothera dauma DISJUNCT
Sparsely distributed and uncommon in sholas.


11. BLACK-AND-RUFOUS FLYCATCHER
Muscicapa nigrorufa ENDEMIC
Patchily distributed in high altitude evergreen forest; fairly common where found.
N
MYSORE
COIMBATORE
PALGAT GAP
CANNANORE
CALICUT
ALLEPEY
TRIVANDRUM
ARABIAN SEA
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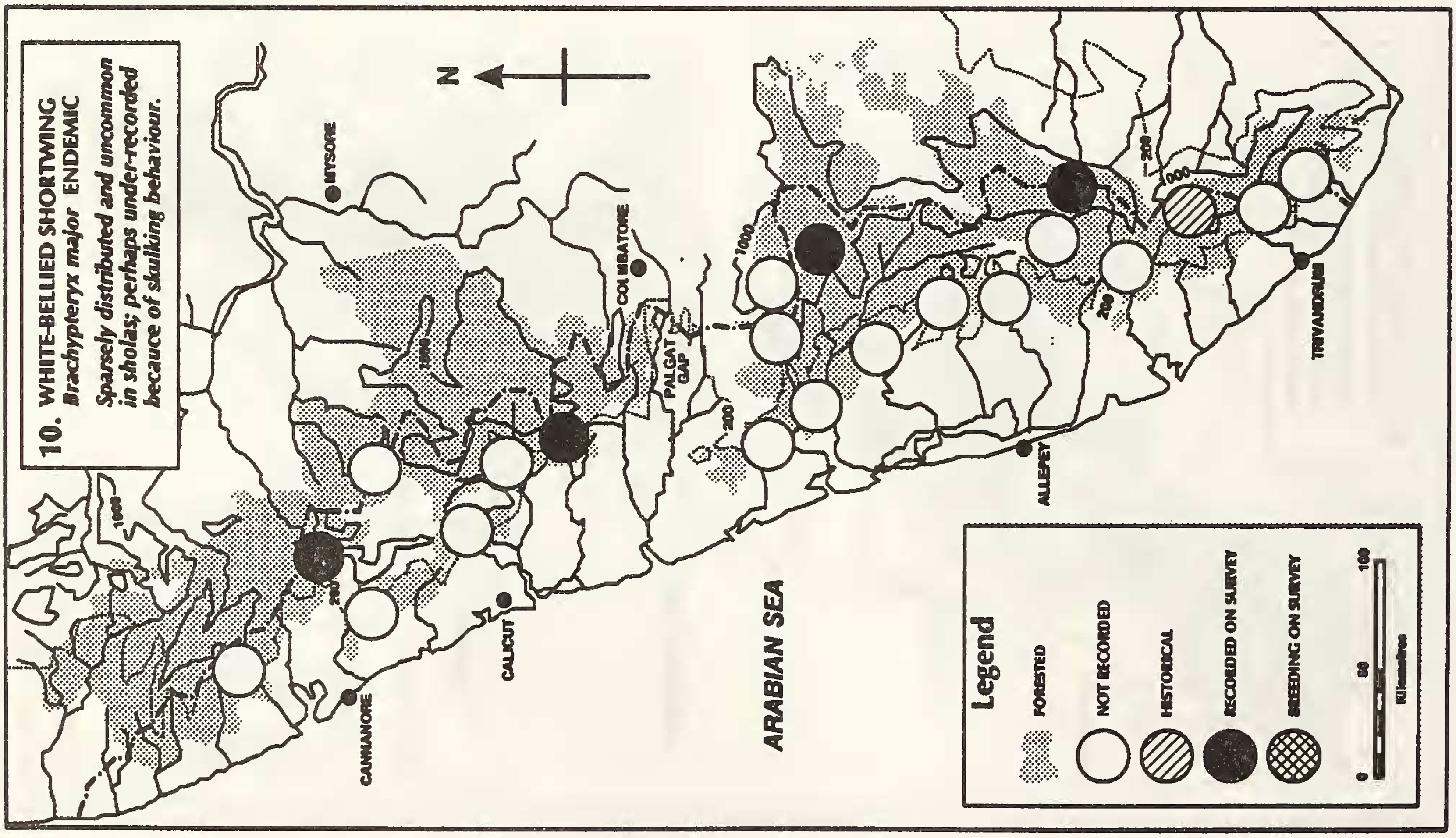
10. WHITE-BELLIED SHORTWING
Brachypteryx major ENDEMIC
Sparsely distributed and uncommon in sholas; perhaps under-recorded becauce of skulking behaviour.
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PALGAT GAP
CANNANORE
CALICUT
ALLEPEY
TRIVANDRUM
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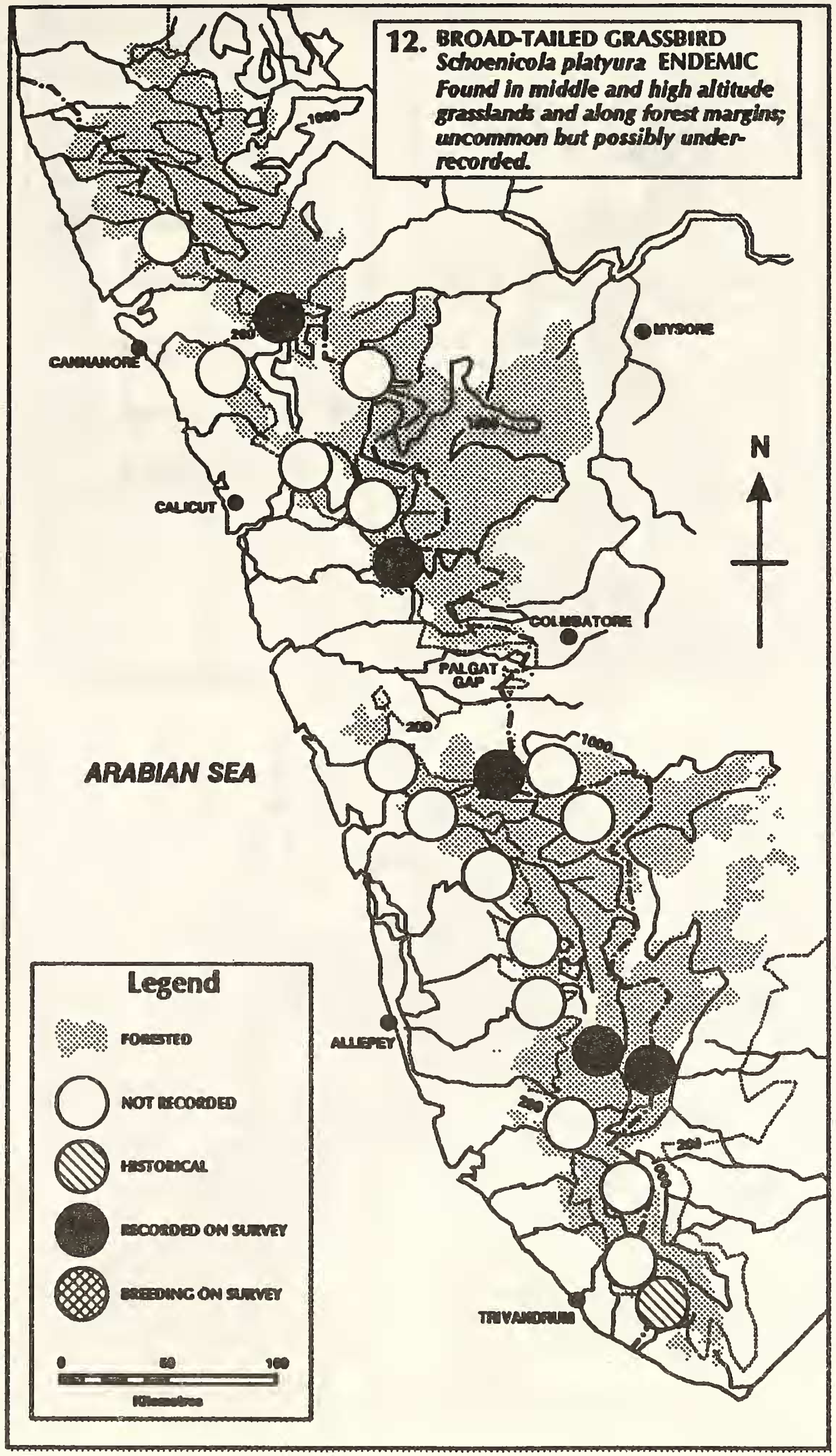
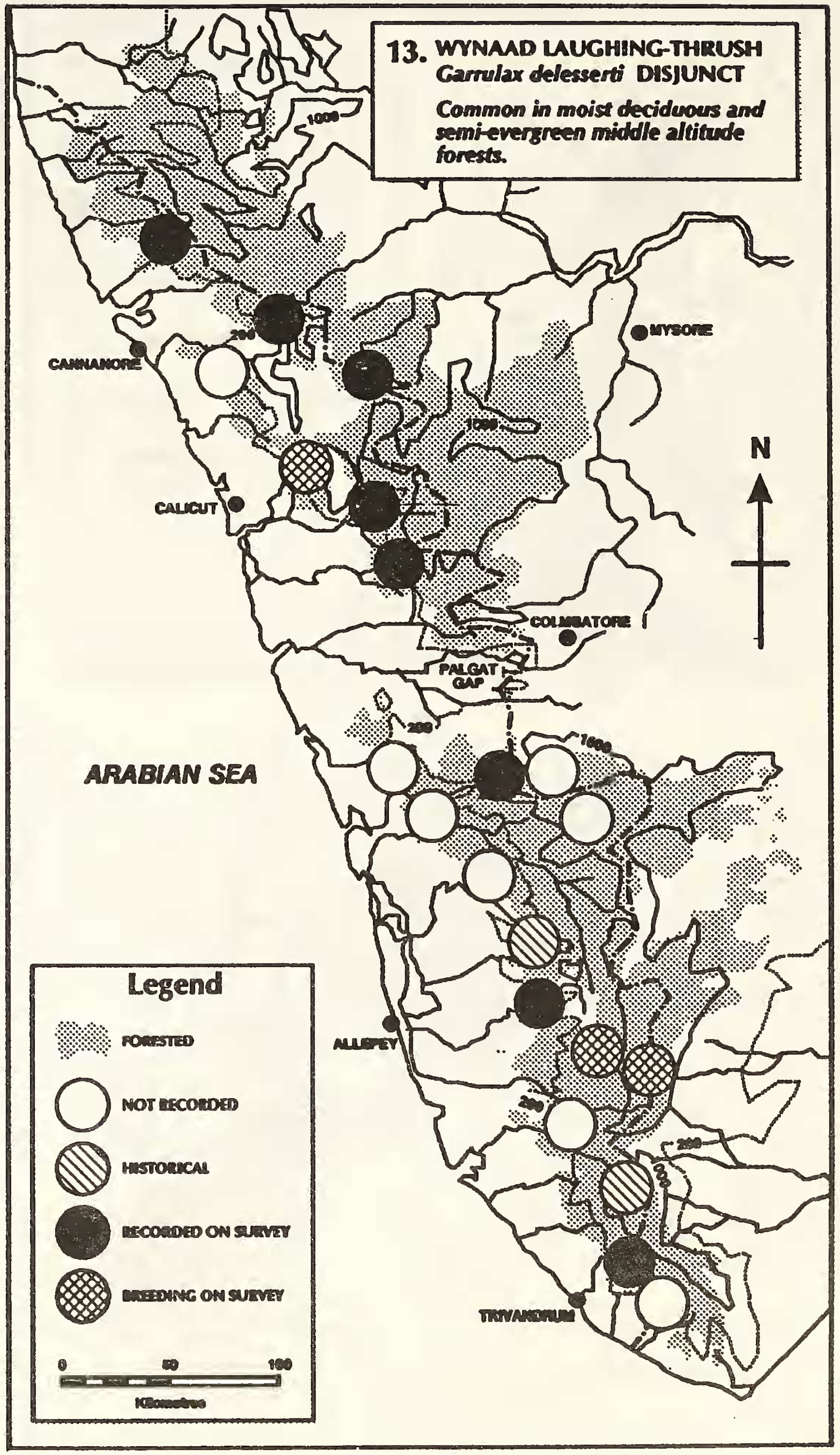
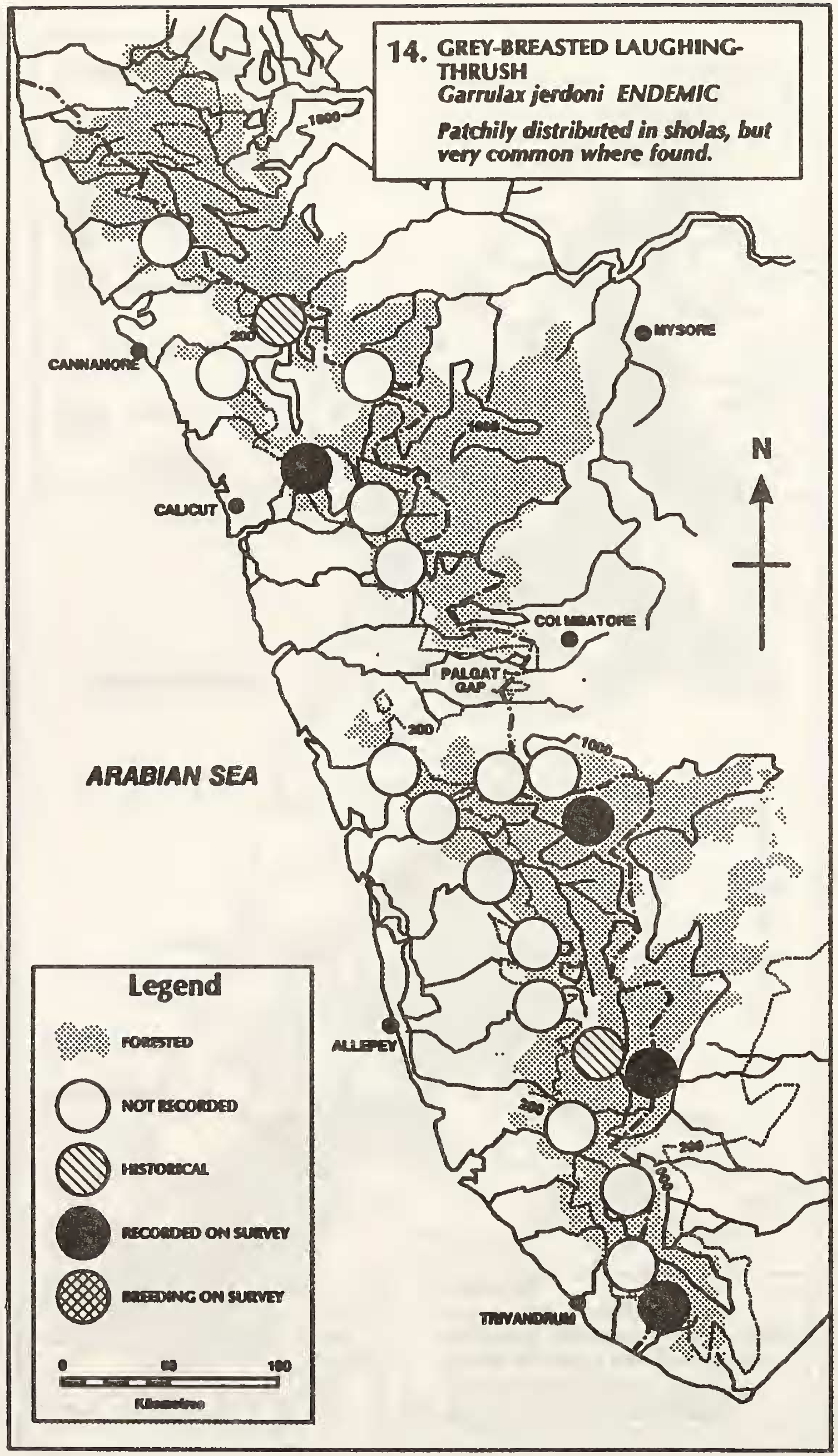


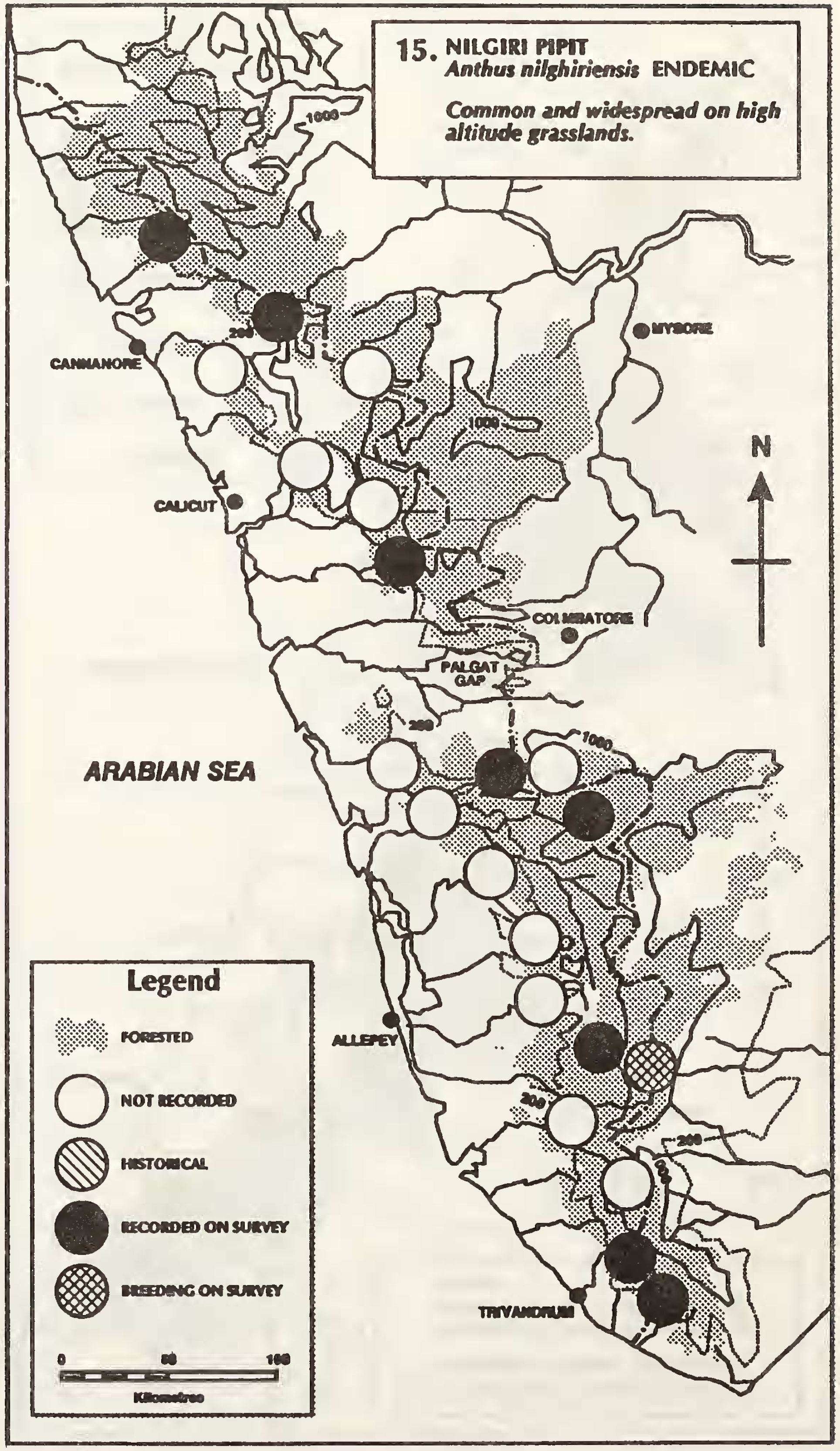
12. BROAD-TAILED GRASSBIRD
Schoenicola platyura ENDEMIC
Found in middle and high altitude grasslands and along forest margins; uncommon but possibly under-recorded.



13. WYNAAD LAUGHING-THRUSH
Garrulax delesserti DISJUNCT
Common in moist deciduous and semi-evergreen middle altitude forests.



14. GREY-BREASTED LAUGHING-THRUSH
Garrulax jerdoni ENDEMIC
Patchily distributed in sholas, but very common where found.



15. NILGIRI PIPIT
Anthus nilghiriensis ENDEMIC
Common and widespread on high altitude grasslands.

(Great Hornbill *Buceros bicornis*, map 1; Malabar Pied Hornbill *Anthroceros coronatus*, Malabar Grey Hornbill *Ocyceros griseus*, Threetoed Kingfisher *Ceyx erithacus*, Malabar Whistling Thrush *Myiophoneus horsfieldii*, Southern Treepie *Dendrocitta leucogastra*, White-bellied Blue Flycatcher *Cyornis pallipes*). In addition, in comparison with the comments made by Ali (1969), the ranges of Great Hornbill and Nilgiri Wood Pigeon *Columba elphinstoni* seem to have contracted towards higher altitudes.

Status: Although our surveys have not been designed to determine population sizes, we can make some comments on the likely status of those species regarded as rare. We deal specifically with those species occurring in forests and high altitude grasslands in Kerala that are recorded as "near threatened" by Collar *et al.* (1994). None of those occurring in the Western Ghats are believed to be vulnerable to extinction under the latest IUCN guidelines (Mace and Stuart 1994).

Grey Junglefowl *Gallus sonnerati*. Recorded at every locality, and also in coastal areas of Cannanore District, but otherwise rare at low altitudes. Suffers from egg collecting and hunting even in protected areas and is probably adversely affected by the removal of forest understory, but still common in some areas.

Nilgiri Wood Pigeon *Columbia elphinstonii*. This species was recorded at nine localities on our surveys, being uncommon to common everywhere it was found.

Ceylon Frogmouth *Batrachostomus moniliger*. Recorded breeding at Tirunelli, in Wynaad and at Parambikulam. It may be overlooked because of its nocturnal and rather silent behaviour, but apparently is uncommon.

Malabar Grey Hornbill *Tockus griseus*. Recorded in all localities and most common at low and middle elevations, hence apparently rather resistant to the effects of forest degradation.

Malabar Pied Hornbill *Anthracoceros coronatus*. Recorded on our surveys only in Wynaad and Nilambur, but also observed near Cannanore and Calicut outside forest areas and feeding on isolated figs. The species is most widely distributed at low altitudes and hence is probably under great pressure from habitat destruction.

White-bellied Shortwing *Brachypteryx major albiventris*. We found this species at four localities scattered throughout the State and there are previous records from a fifth locality. It was rare everywhere, but its shy disposition and adherence to dense undergrowth make it very hard to find. It may be commoner than it appears, but on the basis of our surveys probably warrants its "near-threatened" designation.

Wynaad Laughing Thrush *Garrulax delesserti*. Recorded in 11 areas on our surveys, in evergreen or semi-evergreen forest, mostly about 500 m. Uncommon to common throughout.

White-breasted Laughing Thrush *Garrulax jerdoni*. Recorded in 4 areas, with previous records from two more areas. Confined to *sholas*, but common where found and abundant in some areas.

Broad-tailed Grass Warbler *Schoenicola platyyura*. Recorded in five areas and previously reported from one other: rare or uncommon, but usually skulking, so probably overlooked.

Brown-breasted Flycatcher *Muscicapa muttui*. Present at most localities in evergreen or semi-evergreen forest, usually uncommon or common.

Black-and-orange Flycatcher *Muscicapa nigrorufa*. Recorded at five localities, with previous records at three more areas, in two of which we were unable to find it. Uncommon to common, but not abundant. The "near-threatened" designation appears appropriate for this species.

Nilgiri Flycatcher *Eumyias albicaudata*. Recorded in 10 localities, mainly in *shola* forests, and often common.

White-bellied Blue Flycatcher *Muscicapa pallipes*. Recorded in all localities, but not found in high *sholas*; generally uncommon.

Southern Treepie *Dendrocitta leucogastra*. Recorded at 19 localities and uncommon to common. Absent from the highest *sholas*.

Conclusions

Current trends in forest clearance for agriculture and plantations and encroachment by settlers, threatened especially the birds of low and middle altitude forests. The present status of such birds as Malabar Pied Hornbill, Malabar Grey Hornbill, Great Eared Nightjar, Southern Treepie and White-bellied Blue Flycatcher seems to be markedly worse than that described by Salim Ali (1969) for the 1930s. These species, especially Broadbilled Roller and Black-crested Baza, are patchily distributed at low densities and may be vulnerable to extirpation from local areas. Higher altitude habitats, where many endemics occur, cover smaller areas, but are less threatened. However, some species occurring at low densities (Rufous-bellied Eagle, White-bellied Shortwing, Broad-tailed Grass Warbler) may be vulnerable to extirpation in the long term.

Kerala has a large network of protected areas (National Parks and Sanctuaries). Effective protection of those areas should be sufficient to maintain most species, although the coverage of low altitude forest is poor, so the remaining fragments should be carefully protected. There is continuous pressure on all habitats and bird populations will need to be carefully monitored in future if Kerala's endemic and disjunct populations are to be maintained.

Acknowledgements

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Appendix 1

DISJUNCT SPECIES FOUND IN KERALA FORESTS, BASED ON DISTRIBUTIONS GIVEN BY ALI AND RIPLEY (1987)

Crested Goshawk *Accipiter trivirgatus*
Black-crested Baza *Aviceda leuphotes*
Jerdon's Baza *Aviceda jerdoni*
Rufous-bellied Eagle *Hieraeetus kienerii*
Great Hornbill *Buceros bicornis*
Indian Goldenbacked Threetoed Woodpecker *Dinopium javanense*
Pigmy Woodpecker *Picoides nanus*
Malabar Trogon *Harpactes fasciatus*
Broadbilled Roller *Eurystomus orientalis*
Lesser Coucal *Centropus toulou*
Large Brown Throated Spinetailed Swift *Chaetura gigantea*
Ceylon Frogmouth *Batrachostomus moniliger*
Great Eared Nightjar *Eurostopodus macrotis*
Fairy Bluebird *Irena puella*
Large Woodshrike *Tephrodornis gularis*
Smallbilled Mountain Thrush *Zoothera dauma***
Eurasian Blackbird *Turdus merula***
Hill Myna *Gracula religiosa*
Fantail Warbler *Cisticola exilis*
Wynaad Laughing Thrush *Garrulax delesserti***
Little Spiderhunter *Arachnothera longirostris*

** Found predominantly at higher elevations.